

Order	3485.1
Measurement	191203-10313-22196-1



Test Report

ISO 22196 (Mod)

Measurement of antibacterial activity on plastic surfaces

Test object:

*Thermalife Interior Anti-Microbial
against Staphylococcus aureus
DSM 21979 (MRSA)*

Order	3485.1
Measurement	191203-10313-22196-01

Test Report ISO 22196 (Mod)

Client: Thermalife Handelsgesellschaft mbH

Address: Am Grarock 3
33154 Salzkotten

Order number: 3485.1

Test object: Thermalife Interior Anti-Microbial against Staphylococcus aureus DSM 21979 (MRSA)

Sample description: Wall paint

Sample receipt date: 02.12.2019

Type of test: ISO 22196-2007: Measurement of antibacterial activity on Plastic surfaces

Test germ: Staphylococcus aureus DSM21979 EDCC 5247

Test laboratory: QualityLabs BT GmbH

Address: Neumeyerstraße 46a
90411 Nürnberg

Measurement: 191203-10313-22196-02

Sample material: n.b.

Number of pages: 7

Test report to the client: **Place and date of completion:** Nuremberg, 06.12.2019 **Recipient:** Thermalife mbH

Laboratory management: _____
Harald Gerauer
Laboratory Manager
QualityLabs BT GmbH

Released: _____
Markus Zehe
Managing Director
QualityLabs BT GmbH

Order	3485.1
Measurement	191203-10313-22196-01

Declaration on quality assurance

This test was conducted and monitored in accordance with the standard operating protocol "SOP to ISO 22196 (Mod)" of QualityLabs BT GmbH. Laboratory and process are continuously monitored by independent external bodies and by internal audits.

Archiving

A copy of the test report, a protocol of the measurement and related correspondence and commercial documents are archived by QualityLabs BT GmbH. The retention period is at least 10 years.

Test description

The antibacterial activity is determined according to a modified version of ISO 22196.

When carrying out the test, a thin liquid film containing the bacteria (1.25×10^4 / cm²) is applied directly to the test specimen (5 cm x 5 cm). A film (4 cm x 4 cm) is then applied (Stomacher-Bags) to prevent drying out. Immediately after inoculation, the bacteria are removed from the test specimen surfaces and the covering film by means of ultrasound and vortexing from the zero sample and the bacterial count (CFU), colony-forming unit) is determined (t₀ value). A further set of zero specimens and antimicrobially equipped specimens are incubated with bacteria in the liquid film (with covering foil) in a moist environment at 37°C. After at least 24h, surviving bacteria are removed from the specimen surfaces and the covering film by means of ultrasound and vortexing and the bacterial count is determined (t₂₄ value).

Order	3485.1
Measurement	191203-10313-22196-01

Evaluation of antimicrobial activity

The evaluation criterion for passing the antimicrobial test is a logarithmic reduction of the antimicrobial sample in comparison to the corresponding reference sample of **≥ 3 log levels**.

Germ reduction [log levels]	Evaluation
< 3	No sufficient antimicrobial activity
≥ 3	Sufficient antimicrobial activity

Order	3485.1
Measurement	191203-10313-22196-01

Information on test conditions

Test conditions		
Specimen size	25	cm ²
Film size	16	cm ²
Volume of inoculum	400	μl
Specimen cleanup	-	-

Information on deviations, pre-incubations, special test conditions

NONE

Order	3485.1
Measurement	191203-10313-22196-01

Test results

	Specimen name	Specimen code	t_0 [cells/cm ²]			t_{24} [cells/cm ²]			Reduction [%]	Log reduction
1	Leneta film	103130212190001	9.0 x 10 ⁴	4.2 x 10 ⁴	3.2 x 10 ⁴	2.0 x 10 ⁵	1.7 x 10 ⁵	1.7 x 10 ⁵	-	Zero specimen
2	Thermalife Interior	103130212190002	6.9 x 10 ⁵	8.0 x 10 ⁴	1.1 x 10 ⁵	< 1.0 x 10 ¹	< 1.0 x 10 ¹	< 1.0 x 10 ¹	> 99.99	> 4
3	Thermalife Interior Anti- Microbial	103130212190003				< 1.0 x 10 ¹	< 1.0 x 10 ¹	< 1.0 x 10 ¹	> 99.99	> 4

*refer to „Metrological interpretation“ S. 6

Test strain	<i>Staphylococcus aureus</i> DSM21979 EDCC 5247
Initial number of germs in the inoculum / cm ²	1.25 x 10 ⁴ (corresponding to 5.0 x 10 ⁵ /ml)
Name abbreviation of the operator	JJ
Measurement completed on	06.12.2019

Order	3485.1
Measurement	191203-10313-22196-01

Comments on test specimens

None

Metrological interpretation of the results

The zero sample provided by the client (**Thermalife Interior, sample code: 103130212190002**) showed an antimicrobial effect, as did the sent active sample (**Thermalife Interior Anti-Microbial, sample code: 103130212190003**). As an additional antimicrobial control, Leneta film was tested, which as expected showed no effect.

Test conducted by: Ms. Jovanovic_____

Verified by: Mr. Zehe_____

References

ISO 22196-07: Plastics — Measurement of antibacterial activity on plastics surfaces

DE 24.09.2014 TN